

we have no positive knowledge; probably it is not extremely rare; but of the infrequency with which it *so* takes place that the patient eventually recovers from his phthisis, we have sadly too established a conviction. The possibility of such a cure is quite certain; but that we have a right to anticipate it in any case of undoubted tuberculous cavity in the lung, all experience forbids."

We might multiply these citations from authors whose conclusions have the weight of laws in pathological science, and especially from among the great teachers of German medicine, but these will perhaps satisfy the reader that the sanguine expressions of faith in the power of medical art to cure phthisis are misplaced and premature, and that we should expose ourselves to less chagrin and our patients to less sorrow by admitting the unquestionable truth that in any given case of phthisis there is not one chance in a hundred of death being averted even for a few years. Not to recognize this probability, while we employ every means in our power to render each particular patient the fortunate exception to the law of mortality which weighs upon those affected with pulmonary tubercles, would be to close our eyes against the most evident conclusions of experience, and forswear our duty to those whom we are bound to serve. We should rather present to them the danger in its full proportion, and make its very magnitude a motive for them literally to *work* out their salvation from the fate which hangs over them.

The prognosis of acute phthisis would seem, contrary to what has generally been supposed, to be less unfavourable than that of the chronic form. Lebert claims to have seen not less than six examples of its cure. Four of these patients afterwards died of other diseases, and exhibited in their lungs the clearest evidences of cured miliary tuberculosis.<sup>1</sup> Several have also been published by Wunderlich.<sup>2</sup> The difficulty of diagnosis in this disease must throw a shade of doubt upon the nature of some of the reported cases, but the proof in those of Lebert is complete. A. S.

#### ART. XI.—*Sanitary Science.*

1. *Proceedings and Debates of the Fourth National Quarantine and Sanitary Convention, held in the city of Boston, June 14, 15, and 16, 1860.* Reported for the City Council of Boston. Geo. C. Rand and Avery, City Printers. Boston, 1860.
2. *Public Health. The Right Use of Records founded on Local Facts;* being two papers read before the National Association for the Promotion of Social Science, at Bradford, in October, 1859; with an account of subsequent proceedings. By HENRY WYLDBORE RUMSEY, Author of "Health and Sickness of Town Populations," "Essays on State Medicine," &c. London, 1860.

WHATEVER may have been the doubts of a few in anticipation of the meeting of the first Quarantine and Sanitary Convention of the United States, in 1857, there can be no question at the present date that it and those which have succeeded it have been productive of useful and important results. The difficulties attendant upon the inauguration of such an effort

<sup>1</sup> Handbuch d. prakt. Med., ii. 115.

<sup>2</sup> Archiv d. Heilkunde, i. 289.

have been, to a great extent, met by the earnestness and practical ability of those by whom it has been carried forward.

We have been, in this country, behind the nations of Europe, less in appreciation of the principles of public hygiene than in the administrative reforms which they should develop, and in the generality of interest of intelligent men in their advancement.

The Quarantine Regulations of the United States have been, to this time, nearly identical with those imposed in the Colonial times; while they have been undergoing modification in Europe for more than thirty years.

All educated men in England, France, and Germany, now find in sanitary science favourite topics of inquiry and reflection; while many of the important legislative provisions of the states of central Europe, for the protection and preservation of the public health, are rather of Italian than Teutonic origin. At Rome, under the emperors Valentinian and Valens, "the poorest of the people shared with the household of Caesar the services of an honourable Iatocracy;" and traces of the perpetuation of the Roman Medical Code are yet extant in Belgium. Farther back, we may remember that Hippocrates and Democedes held a medico-sanitary relation to the public, at Athens, Ægina, and Samos. In Plato's ideal republic, the physician had an essential place.

In modern times, the earliest systematic treatise upon the subject of "Medizinische Polizei" or Medical Polity, appears to have been that of Johann Peter Frank, in 1779.<sup>1</sup> Since that time Germany has furnished a number of able writers upon its different themes. In England, after the "twelve proposals" of John Bellers (1714), sanitary literature maintained a fragmentary state until a quite recent period; while the action of government upon questions of public health has been designated by an English writer as "little dabs of doctoring done by different departments."

As we have said, however, this is no longer the case anywhere in Western Europe, or in this country. While many questions both of principle and administration remain undecided, and while it may be true that "only the threshold of sanitary science has yet been reached," yet a great beginning of reform consists in the fact that preventive medicine is now *appreciated* as a necessary branch of social and political economy; and that it has attained already important triumphs, both in lessening the intensity and prevalence of destructive diseases, and in mitigating or removing the burdens and inconveniences, personal and commercial, which ignorance and terror had long imposed.

The share the American Quarantine and Sanitary Convention has taken in promoting these improvements, by giving the authority and influence of its sanction to principles before advocated by individuals alone, may be readily gathered from the present volume of its debates and proceedings. Believing, however, that its conclusions and enactments of previous years must be familiar to most of the readers of this Journal, it is necessary only to allude at this time to the confirmation which they have again received, and to the efforts made to extend and apply them.

Upon the subject which was most prominent in the labours of previous conventions, the following resolution was passed by that of 1860, on motion of Dr. Jewell:—

<sup>1</sup> John Evvich, the *Medicus Ordinarius* of Bremen, published in 1582 a singular book entitled *De officio fidelis et prudentis Magistratus in tempore Pestilentiae*. Rumsey, *Essays on State Medicine*, p. 300.

"Whereas, at the last meeting of the Convention, after a learned and dispassionate discussion, the long agitated question of the non-transmission of yellow fever from one person to another was definitely settled; in order to strengthen that decision, therefore

"Resolved, that the action of the last Convention on the question of the non-contagiousness of yellow fever be, and is hereby reaffirmed."

During the debates of the same session, and in the less formal speeches made by delegates on incidental occasions, confidence in the soundness of the views previously agreed upon was most freely and even enthusiastically expressed. Yet that these views are not extreme, is obvious from the character of the report of the Committee on External Hygiene, adopted almost without dissent by the Convention.

This report is probably the most important part of the Transactions of the year. It was prepared by Drs. A. N. Bell, E. Harris, W. Jewell, R. D. Arnold, and H. G. Clark; including also a report on the "Utility of Wet Docks in connection with Quarantine," by Drs. J. W. Sterling, A. H. Stevens, and J. McNulty.

Opening with a few prefatory remarks, a sketch is given, in the report, of the progress of the quarantine discussion and its relation to sanitary reform, since the time of Chervin; awarding due credit to the French reformers, Dupeytron, Aubert-Roche, and Mélier, as well as to Chadwick, Guy, Southwood Smith, Duncan, Milroy, and others in Great Britain.

The Committee then makes a statement of the special wants and faults of existing arrangements for "external sanitary defence;" under the two heads, I. The defects that relate to the sick and to sanitary protection; II. The deficiencies that relate to commercial transactions and public convenience. Under the first head are included hospital accommodations and facilities for the reception of patients, as well as the construction and management of docks and warehouses for quarantine purposes. Under the second head are mentioned the needless and expensive detention and delay of vessels and cargoes, the damage to such cargoes and vessels at quarantine, and the inconvenience and expense of lighterage.

Several of these topics are emphatically dealt with in the report upon the Utility of Wet Docks in connection with Quarantine.

Experience in the New York Marine Hospital has afforded reasonable ground for dissatisfaction with the facilities there and in similar establishments, afforded for the care of the sick. In sixty years 72,595 patients have been admitted into that hospital, of whom 10,493, a seventh part, have died.

"In order fully to appreciate the wants of a quarantine establishment, it is necessary to have been a spectator of some of its woes. In reading the history of quarantines as they have existed in various parts of the world, as well as legislative and other reports and communications relating thereto, the paramount and almost exclusive subjects of inquiry have been, How shall we protect our citizens against the invasion of pestilential disease? How can we lighten the burdens which quarantine imposes upon commerce? The speeding of the weary voyager and the care of the sick being regarded as of minor importance, too often is the poor squalid immigrant, as he is frequently called, shunned, loathed, and, if sick, even viewed as a culprit. We are not apt to appreciate their miseries, destitute, homeless as they are; fleeing from famine and oppression abroad; long pent-up in the hold of an ill-ventilated vessel; their sickness their misfortune, not their fault."

The description of the Lazaretto San Leopoldo at Leghorn suggested to the writer of the report the advantage of wet docks in alleviating the

sufferings of the sick on being landed at quarantine. At the same time, such docks would afford protection to the vessels themselves against the violence of storms, would secure their merchandise from plunder and loss, and would expedite the introduction of goods into the market. Having first landed passengers and cargoes, vessels needing purification may be cleansed and ventilated at the dock; although very foul vessels will require the further use of *dry docks* for thorough expurgation.

Commercial history has shown that, as at Liverpool and London, the construction of wet docks has done much to attract and facilitate commerce. The West India docks on the Thames comprise an area of two hundred and ninety-five acres.

Very much less extensive accommodation, however, would be needed at any port for the purposes of quarantine. It is estimated by the Committee that a dock capable of affording room for thirty or forty vessels at a time would suffice as a maximum.

The next section of the report of the Committee on External Hygiene is upon "Specific Measures of Quarantine, severally applicable to Yellow Fever, Cholera, Typhus, and Smallpox, with the variations which different localities require."

Quarantine Hospitals are first considered. As to the distribution of the sick, the following remarks indicate the views of the Committee:—

"While facts do not warrant the conclusion that any disease is necessarily and inevitably infectious or contagious under all circumstances, it is so true of smallpox and of typhus that they do certainly spread by personal contact, limited infection of apartments, and also by personal *fomites*, that it is manifestly the duty of the sanitary authority to insure the entire seclusion of each of those maladies. As regards both yellow fever and cholera, it will be generally admitted that it is due to public quietude, even if it is not known to be absolutely necessary for public safety, that persons arriving at quarantine with either of those maladies should be provided for in secluded hospitals. But it is safe to recommend that the local sanitary authority of any city or port should decide whether special hospitals be established exclusively for the sick arriving at quarantine, or whether the special hospitals established for the seclusion of the same diseases occurring in such city or port, be also used for the same class of patients arriving from abroad."

This is going as far in the direction of reform as can be expected at the present time. As it was observed by a speaker in one of the debates of the Convention, "civil authorities will never move in advance of public sentiment, and public sentiment will never progress until it is enlightened." And thus, while a few scientific minds in this country, and many abroad, still advocate, with an earnestness of conviction that no preponderance of evidence can shake, the contagiousness of both cholera and yellow fever, it is perhaps, so far as public arrangements are concerned, "wiser to acquiesce, at least provisionally, in opinions" or practices "which have prescription in their favour; and of which the refutation, if they be refutable, is not yet certain and complete."<sup>1</sup> Yet, we are confident that more than this will hereafter be done; and that some future sanitary convention, at a time not very far distant, will insist that no more fear should be felt, by a community, of the persons of patients sick with yellow fever, or cholera, than is now felt of those suffering with pneumonia or influenza.

As to location, it is urged that quarantine hospitals should be so convenient of access from the quarantine anchorage, and warehouses, and

<sup>1</sup> Lord Stanley's Address on Public Health. Birmingham, 1857.

docks, as to afford the best possible facilities for the immediate medical care of the sick arriving, and of labourers or others becoming ill at the station.

In regard to arrangements, such hospitals require, especially, 1. *Ample air-space and effectual ventilation.* 2. Proper supply and control of sunlight in the wards. 3. Such construction and material for the wards as not to favour the retention and perpetuation of febrile poisons and pestilent emanations. 4. Means for *immediate* and safe disinfection of all clothing, bedding, &c.

The Committee recommends that the quarantine docks, warehouses, and anchorage, should be located at least two miles from any populous neighbourhood, however rural, and, when practicable, at a much greater distance from cities or large towns. The executive management of such establishments should be under direction of competent scientific officers.

It is very properly observed that a ship arriving with typhus fever or smallpox at midwinter, is as legitimately a subject for quarantine restrictions as one with yellow fever on board in midsummer.

So important are the declarations of the Code of Marine Hygiene presented in this report, as to make it appropriate to quote some of them in full.

"Every organized government has the right of protecting itself against the introduction of infectious diseases, and of putting any country, place, or thing in quarantine which would introduce infectious diseases; provided, however, that no sanitary measure shall go so far as to exclude or drive from port a vessel, whatever may be her condition.

"2. The only diseases at present known against the introduction of which general quarantine regulations should be enforced, are, plague, yellow fever, cholera, smallpox, and typhus fever. As regards plague, the European Congress at Paris had the right to settle the question for the nations there represented; and, inasmuch as they and the other nations of the Eastern Continent have reason to subject the plague to quarantine restrictions, the States of America yield implicit obedience to that convention.

"3. All quarantine regulations, of any place whatever, should bear with equal force against the toleration or propagation of disease as against its introduction; and authority to prevent the introduction of disease in any place, should be equally applicable against its exportation.

"4. All quarantinable diseases are chiefly introduced and propagated by the *materiel* of commerce; and it is therefore against it that quarantine restrictions should be instituted, and *not* against the *personnel*; excepting, however, persons with no evidence of vaccination, and known to have been exposed to smallpox; such persons shall be vaccinated as soon as possible, and detained until the vaccination shall have taken effect; otherwise, they may be detained fourteen days from the time of the known exposure.

"5. The application of quarantine regulations shall be regulated by the official declaration of the constituted sanitary authority at the port of departure where the malady exists. The cessation of these measures shall be determined by a like declaration that the malady has ceased, after, however, the expiration of a fixed delay of thirty days for the plague, fifteen days for yellow fever, and ten days for cholera.

"6. It is obligatory on all vessels to have a *Bill of Health*; this shall consist of two kinds only, a *clean bill* and a *gross bill*, the first for the attested absence of disease, and the second for the attested presence of disease. The bill shall state the hygienic state of the vessel; and a vessel in a bad condition, even with a clean bill of health, shall be regarded as a vessel having a gross bill, and shall be submitted to the same régime."

Provisions in detail are also elaborately set forth: as, I. Measures relating to Departure. II. Sanitary Measures during the Voyage. III. Sanitary Measures on Arrival.

Under the last head we find the repetition of the principle that *all well persons* shall be allowed free *pratique*, excepting in cases of smallpox, as above stated. Ordinary cargoes of dry and imperishable goods are also admitted to free *pratique* after examination, with some temporary exceptions.

Merchandise to be submitted to obligatory quarantine and purification, comprises clothing, bedding, personal baggage and dunnage, rags, paper, paper-rags, hides, skins, feathers, hair, and all other remains of animals, woollens, and silks.

Cotton, linen, hemp, and *cattle* are to be subject to *optional* quarantine. All other merchandise is to be *exempt* from quarantine. A foul ship, it is well said, is much more to be dreaded, as a vehicle of introducing disease, than anything she has on board. Such ships must be broken out and duly cleansed and ventilated before they can be properly allowed to enter a port or lie alongside of a wharf or other ships.

The Committee furnishing this report was, on its adoption, directed to negotiate with the national government or department of State, to secure the national and international adoption of a code based upon the principles advanced in it. A committee of delegates from the several States represented in the convention was also authorized to confer with the State governments in regard to its adoption.

Dr. D. B. Reid, of Wisconsin, a member of the same Committee, contributed an interesting "Summary," on the importance of an International System of Quarantine, which is appended to the report.

The remaining reports published in this volume are upon "Registration," "Heat as a Disinfectant," "Civic Cleanliness, &c.," and "Legal Control of Poisons and Dangerous Drugs." A few words only of remark being allowed us upon each of these, the first named will be taken up in connection with the papers upon a similar subject, by H. W. Rumsey, named at the head of this article.

Dr. Elisha Harris' paper upon the "Utility and Application of Heat as a Disinfectant" is a very interesting and instructive one. After a brief historical allusion to the ancient and modern use of *fire*<sup>1</sup> for the destruction of infection, and an account of the great difficulty and costliness which must make its employment unavailable on a large scale, he considers, at some length, the evidences of the disinfecting power of high temperatures short of a degree which would be destructive of ordinary textile fabrics and other materials likely to act as *fomites*.

M. Violette has shown that dry vegetable tissues enter upon the first stage of carbonization at 222° Fahr. Ovens bake at from 320° to 400°; sulphur ignites at 560°; cane-sugar melts at 320°; and liquid albumen coagulates at about 145°. All vegetable life is extinguished at a temperature far below that of boiling water; and animal life is generally destroyed by a comparatively brief application of heat that coagulates albumen. All kinds of fermentative catalysis cease at a temperature still lower. All processes in nature, in short, which bear any analogy to the incubation, propagation, and action of pestilent infections, are arrested or very essentially modified by high heat.

Observation and experiment have confirmed the expectation thus derived, so far as they have gone. It is a commonly known fact, that the *boiling* or *steaming* of infected clothing effectually purifies it, while mere washing is entirely insufficient.

<sup>1</sup> See La Roche on Yellow Fever, vol. ii. chap. xxii.

In Berlin, in 1851, Dr. Von Busch succeeded in disinfecting the wards of the lying-in hospital, by a dry heat of  $150^{\circ}$  Fahr., maintained for two days; although puerperal fever had before obstinately clung to the house, in spite of all other measures of thorough cleansing. The same class of patients was immediately readmitted, without any occurrence of the disease. A year later, the pestilence returned, and was again annihilated in the same way, by the agency of common stoves.

It is certainly rational to extend the expectation of similar results to the cases of hospital gangrene, erysipelas, and typhus, which so often cling to public and even private buildings, and, in the instance of the last disease, to ships. As to yellow fever, facts of positive value are given, as having occurred in the experience of Dr. Harris in the New York Quarantine Hospitals, and in that of Dr. A. N. Bell in the U. S. Navy, in southern waters. Reference is also made to the instance of the British transport ship *Regalia*, narrated by Dr. William Ferguson.<sup>1</sup> For the details of these cases, we must refer the reader to the report itself.

Some very interesting experiments were made upon this subject by Dr. W. Henry, F. R. S., of Manchester. His purpose was to determine, 1st. What elevation of temperature cotton and other substances likely to harbour contagion might sustain without injury. 2d. That, in at least one unequivocal instance, contagious or infectious matter should be proved to be destructible at that temperature. As quoted by Dr. Harris, he ascertained that raw and manufactured cotton, silk and wool, fur and feathers, could be exposed for three hours to a dry heat of from  $180^{\circ}$  to  $220^{\circ}$  without injury.

Vaccine virus was also found to lose its specific property after exposure to a heat of  $140^{\circ}$  or upwards. Further experiments with the clothing, &c. of patients having typhus and scarlatina, strengthened, although, of course, less definitely, the evidence in favour of the proposition that a temperature of  $200^{\circ}$  will destroy infection or contagion, without injury to the fabrics most likely to be its vehicle.

Dr. Harris announces his full belief in this potency of heat, whether dry or applied by steam. He urges, however, that more extended experiments should be made upon various points connected with its use. For vessels, especially, steam will be found much the most convenient medium. No costly apparatus will be required; steam-tugs upon the water, and portable steam-generators upon land can be made to serve the purpose at moderate expense.

As illustrating the absence of injurious action by high steam heat upon valuable fabrics, it is stated that, at the establishment of J. G. Scott, Esq., at Shemlan, near Mt. Lebanon, in Syria, vast quantities of silk cocoons are exposed to jets of steam, to destroy the vitality of the chrysalis, and thus preserve them in a state fit for reeling. This is effected in a few minutes, without any damage to the silk.<sup>2</sup>

We cannot avoid entertaining a sanguine hope that the investigations of Dr. Harris upon this subject may be pursued with such further success, upon a large scale, as to establish the importance of high heat, as being, with the exception of intense cold, the *only* reliable disinfectant, in the case not only of yellow fever, but of all analogous diseases.

<sup>1</sup> Royal Med.-Chirurg. Transactions, vol. viii.

<sup>2</sup> Prof. Bollman, of Russia, has found the *potato-disease* to be arrested, by drying the potatoes used for seed under a moderate heat; their germinating powers not being thus at all interfered with.

The report of Lieut. Egbert L. Viele, on "Civic Cleanliness, and the Economical Disposition of the Refuse of Cities," is deserving of a more extended analysis than our space will permit. It considers, succinctly, the four subjects of drainage, paving, supply of water, and sewerage, with practical suggestions upon each.

In regard to drainage, local conditions must necessarily govern the arrangements required for each place. The cities of this country, having been built with reference chiefly to the convenience of trade, and having many of them grown with enormous rapidity, are much behind those of Europe in facilities for drainage.

Paving is held by the author of the report to be of equal importance to the public health. The best pavement is asserted to consist of "small cubical blocks of primitive rock laid upon a bed of concrete." The old Roman pavements, which have survived everything around and above them, were constructed upon this principle. Cobble-stone paving is a mere temporary expedient.

Rome affords also a salutary lesson (as was shown by Dr. John Bell in his report of 1859) as to the value of an ample water-supply, as well as of sewerage. "To her sanitary regulations she owed her imperial splendour; to their neglect she owed her ruin."

The report of Lieut. Viele also alludes to the causes of insalubrity connected with docks, wharves, piers, and bulkheads, as ordinarily constructed. A diagram is given, showing a plan for a wharf built on stone piers, the superstructure being of wood.

Upon the topic of the "Economical Disposition of the Refuse Matter of Cities," Liebig's letter to Alderman Mechi, of London, is introduced, as affording a correct exposition of important principles. We have room only for a few sentences:—

"A well, however deep it may be, which receives no supply of water, must, in the end, become empty, if its water is constantly pumped out. Our fields are like such a well. For centuries those elements which are indispensable to the reproduction of the crops have been taken from the soil in those crops, and that, too, without being restored. The loss of these elements is brought about by 'the sewerage system of towns.'"

"History teaches that not one of all those countries which have produced corn for other lands have remained corn-markets, and England has contributed her full share towards rendering unproductive the best lands of the United States, which have supplied her with corn, precisely as old Rome robbed Sardinia, Sicily, and the rich lands of the African coast, of their fertility."

"If it be perceived that no country can perpetually supply another with corn, then it must be still easier to understand that an importation of manures from another country must cease still earlier." "The prices of bones have already become so high in Germany as to forbid their exportation. . . . In relation to guano, I have been assured that in twenty to twenty-five years, if the use of guano should increase in even the same proportion as hitherto, there will not remain in South America enough to freight a ship."

"It has been maintained that the recovery of the manure-elements out of the sewers of large cities is impracticable. I am not ignorant of the difficulties which stand in its way. They are indeed very great; but if the engineers would come to an understanding with the men of science in relation to the two purposes —the removal of the contents of the sewers, and the recovery of their valuable elements for agriculture—I do not doubt that a good result would follow."

The remainder of Lieut. Viele's report is occupied by the brief discussion of the best modes of disposal of city-refuse, under the several heads of street-cleanings, garbage, sewage, night-soil, and offal. It is apparent that no

perfectly economical scheme has yet been devised ; and although we are hardly ready to indorse the criticism of a member of the Convention, in the debate upon the adoption of the report, as to its having touched the matter "too lightly," yet we may hope that this is a subject to which the most practical minds will yet be devoted, until we obtain hereafter a remedy both for the sanitary evil and the economical extravagance.

In Paris, the contractors who carry off the sweepings of the streets alone, realize upon the sale in the form of manure a total sum of \$700,000 per annum. The elevated site of Edinburgh allows its sewage to be distributed over a considerable tract of meadows, producing unexampled crops of grass, and commanding a high rent. In Birmingham, a new system of drainage and sewerage was commenced in 1840, by which, through the agency of a reservoir, three miles from the centre of the town, and capable of holding six million gallons, the sewage may be made available. This reservoir will command the Tame and Trent Valleys, one hundred miles in length, with a fall of upwards of four hundred feet.

The Chinese and Japanese seem to have been in advance of western civilization in the use of *night-soil* as manure or *poudrette*. It is employed largely, however, already, in Belgium and France.

Dr. C. B. Guthrie's report "On the Legal Control of Poisons," is the last in the volume now before us. Its purpose is to urge such legislation as will lessen the danger connected with the sale of dangerous drugs by imperfectly educated or irresponsible persons; and also to make such restrictions uniform in the several States.

There appears to have been, in the debate in the Convention upon this report, considerable difference of opinion ; not as to the desirableness of these objects, but as to the means of promoting them. Several members objected to the specification of a list of poisons ; which was, accordingly, left out. We may observe, however, that Dr. Guthrie's argument in its favour seems to be supported by the fact that, as stated by Dr. A. B. Taylor before a committee of the House of Lords, of 540 deaths yearly, on an average, by poison, in England, three-fourths have been due to two substances, arsenic and opium—while a list of thirteen articles includes nearly every case that is recorded.

It was a question with some members of the Convention, apart from all doubt as to the practicability of more than merely palliative legislative reform, in this matter—whether it was an appropriate subject for the consideration and action of a sanitary body ? The same question was more positively urged in regard to the epidemic "pleuro-pneumonia" of cattle, upon which some remarks were made ; and it might have been extended, for analogous reasons, against the appointment of a committee upon the working hours of the labouring class.

We cannot hesitate to agree with those who answered this question, in all of these cases, in the affirmative. All such subjects of investigation, action, and legislation, are relevant to public hygiene and preventive medicine ; all are therefore appropriate to a sanitary convention.

The disposition of the members to extend the field of labour beyond the anticipation of those who were the pioneers of the work, was shown by the appointment of a Committee on State Medicine. It is true that the duties of this Committee were not so enunciated as to justify the title given to it ; it being really a standing Business committee. But, such action indicated a consciousness among the members that room existed for some modification at least in the classification of their labours and inquiries ;



especially when, as will soon be the case, it shall have assumed the proportions of a perennial association, instead of an annual convention.

What is State Medicine? Dr. Ordronaux, who introduced the subject, defined it as "the application of the principles of medical science to the administration of justice and the preservation of the public health; a system of medical police, preventive, punitive, and reformatory." Mr. Everett used for it the synonyme "State *Hygiene*." Dr. E. Harris, referring to the German term, *Medicinal Polizei*, designated it as "the work of the State in reference to questions of sanitary science." This is confirmed by the language used in the only systematic English work on the subject. H. W. Rumsey, in his "Essays on State Medicine,"<sup>1</sup> speaks of their theme as "the Agenda of a State with regard to the public health."

It may not be out of place to quote briefly the schedule of topics deemed by this able writer to be appropriate to State Medicine. These are:—

"I. Subjects concerning which the State should direct *Investigation*: a. Statistical; b. Topographical; c. Jurisprudential.

"II. *Practical arrangements* for the personal safety and health of the people, requiring for their enforcement either direct or legislative enactments, or local institutions and regulations: a. Preventive; b. Palliative measures.

"III. *Organized machinery*, established by law, for carrying into effect the aforesaid inquiries, for deliberation and advice on special arrangements and emergencies, and for the administration of existing laws. This would comprehend, a. The education of medical men, and the qualification of other technical, scientific and administrative agents. b. The institution of official authorities—Boards and Offices—for central and local superintendence and action."

Obviously, a distinction may thus be properly maintained between, upon the one hand, the *Science* of etiology, and the *Theory* of public hygiene—and, on the other, *State agenda* for the legislative and administrative *application* of such theory and science to the protection and amelioration of the public health.

But, we must leave this topic, to dwell for a short time upon the report to the Sanitary Convention, by Dr. E. M. Snow, of Providence, on Registration.

Dr. Snow, in clear and concise language, states, I. The kind and extent of information desired for statistical and sanitary purposes; and, II. The best method of obtaining the information needed, in relation to births, marriages and deaths, particularly in cities.

Upon the first head, we have room to quote only the following paragraphs:—

"Information in relation to the *parentage* of those who die is important, not only because the facts obtained relate to two classes of the population which, as classes, are entirely different from each other in their sanitary condition and in all the circumstances by which they are surrounded; but also because the division of the population according to nativity or birth-place has no value whatever, and only misleads and deceives the inquirer after truth. And yet the classification according to birth-place alone is given in the mortuary reports of all the cities of this country except Boston and Providence.

"The following examples will show the value of this distinction. In the city of Providence, during the year 1859, there were 340 deaths of children under 5 years of age. According to nativity, we find that 338 of these children were of American, and 2 only of foreign birth. But, classified according to parentage, 137 were of American, and 203 of foreign parentage.

"In the same city, during the same year, there were 75 deaths from the four

<sup>1</sup> London, 1856.

diseases, cholera infantum, cholera morbus, diarrhoea and dysentery. Of these 75 persons, 69 were of American and 6 of foreign birth; but according to parentage, 25 were of American and 50 of foreign parentage."

In relation to the registration of *births*, the two plans, of requiring *parents* to report them, and of demanding the same duty of *physicians* have proved practically inoperative. Dr. Snow believes the only available method to be, that of requiring the recording officer to obtain the information personally, or by his agents. This is done in Boston and Providence, with good results. In Providence, marshals are employed to visit every family in the city, in January and July of each year, and obtain all necessary information in regard to all children born during the preceding six months. A fee of ten cents for each full report of a birth, and another fee of the same for recording it, are provided.

As to *marriages*, a plan similar to that contained in the *Code Civil* of France is recommended. According to this, a formal marriage contract must be written, signed, and sealed, acknowledged before a proper officer, and placed on record. The certificate to this effect of the recording officer can alone authorize the completion of a marriage by a religious ceremony.

Equally imperative reasons are urged in this report in favour of an analogous provision for the registration of *deaths*. It is advised that,

"1. No dead body of a human being shall be buried, or placed in a tomb, or removed from the city, without a permit from the recording officer.

"2. No permit shall be given until full information concerning the deceased person is furnished, including satisfactory evidence in relation to the cause of death.

"For the latter purpose, 'well qualified physicians should be appointed in all cities, whose duty it should be to make an examination into the circumstances relating to all deaths reported without the certificate of a physician or of a coroner.'"

If we turn now to Mr. Rumsey's papers on the "Right Use of Records founded on Local Facts," it will appear that similar difficulties to those which impede the collection of sanitary statistics with us, are also obstructive in England. Dr. Farr asserted recently that "only 83 in 100 of deaths throughout the kingdom are certified by medical attendants; and that in one quarter of a year nearly twenty-two thousand deaths were returned without any authorized statement of the cause."

In France, the law for registration of births, deaths, and marriages is precise. The *médecins vérificateurs* of Paris are required to attest, after examination, the fact of death, its cause, and other particulars. In Prussia and the Southern German States, accuracy in the returns is not secured to any great extent.

The Austrian system of mortuary registration is the most perfect. Every death must be examined into by the *Todtenbeschauer*, who is a surgeon. His certificate, founded on personal inspection and inquiry, is necessary to burial. All sudden, violent, or suspicious deaths, still-births in certain cases, and deaths under the treatment of quacks, are referred to a court of official physicians and surgeons.—*Gerichtliche Leichenbeschau*.

The two papers to which we have just referred were contributed, as stated upon their title-page, by Mr. Rumsey, to the meeting of the National Association for the Promotion of Social Science, at Bradford, England. This Association, organized in 1857, in which year its first meeting was held at Birmingham, under the Presidency of Lord Brougham, contains among its members a large number of the most eminent men in Great Britain. The

Department of Public Health has been especially favoured in this respect ; the medical profession being largely represented among its members and committees.

Mr. Rumsey's object appears to be the laudable one of promoting sanitary reform by instituting more reliable methods for accumulating such *facts* as are required for the establishment of its principles ; by "the adoption of a more rational, trustworthy, and efficient system of public inquiry and record than has yet been applied to the *sickness* and *mortality* of the population." Only thus can the true laws of etiological science be ascertained.

"If complete records of sickness and mortality were compiled and published, in the several registration districts, by a legally constituted order of men, of superior education and large medical experience, habituated to scientific processes, and in respectable position, any deliberate concealment or perversion of facts would be next to impossible. . . . . Granting fully that it would be most unreasonable to look for perfect reports under any general system, yet, to oppose measures clearly tending to secure a minimum of error, because, in the nature of things, abstract truth is unattainable, I consider a culpable absurdity."

John Bellers, at the beginning of the eighteenth century, Dr. Clifton, in 1732, and Dr. Walker, of Huddersfield, in 1844, urged strongly a system of public registration of disease. Liddle, Milroy, and others, have followed with similar plans. Amongst those, who, in England, have recently taken active interest in the subject, have been Miss Louisa Twining, whose paper was presented to the Social Science Association in 1860, and Florence Nightingale, who made some valuable suggestions upon it to the Statistical Congress.

The difference of opinion between Dr. Milroy and Mr. Rumsey as to the registration of sickness being placed under control of the Poor Law Board, to which the latter objects, does not immediately concern us ; although experience in this country also would probably sustain the view that "pauper controlling authorities" are, by the very nature of their charge, unsuited for wider spheres either of sanitary investigation or medical relief.

Yet, commencing with cases under care of Guardians of the Poor, statistics of dispensaries and hospitals might follow as well as those of prisons and penitentiaries ; asylums of different kinds ; dock-yards, arsenals, and other public works ; revenue departments and police force ; mines, collieries, factories, and public schools. Friendly or beneficial societies have furnished a great deal of material, already, to vital statisticians. Lastly, it only requires uniformity of record, and a public supply of tabular forms, as in the instance of the medical records of the army, to enable private practitioners to furnish full accounts of the statistics of disease and mortality occurring in the community at large. It is very much to be desired that such accurate and regular statements might take the place of the annual "Reports on Epidemics" of our county, State, and national associations ; which have been in this country, as they are said by Mr. Rumsey to have been in England, with few exceptions, "incomplete, unsystematic, and temporary." Such reports are mere apologies for the statistics which ought to be obtained for sanitary purposes, were the minds of medical men fully awake to their importance, and to the facility with which they might be recorded and collated.

Many errors in sanitary, and even in medical, theory, might thus receive correction. Mr. Rumsey quotes, for example, the very diverse views of the late Dr. Snow, Dr. W. Budd, and others, upon the extension of cholera ;

of Drs. Murchison, Barker, and McWilliam, and of Dr. Parkin and Mr. Craig, of Ayr, upon the origin of typhus and typhoid fever; to show that observers of the same facts may reach the most opposite conclusions, so long as those facts are not so exactly rendered as to allow of close scientific analysis.

Again, two of the etiological propositions which have, from the high character of their advocates, as well as from their own practical bearing, attracted of late the most attention, are Dr. Farr's law of *altitude*, i. e., that the amount of disease and mortality varies inversely with elevation above the sea level; and Dr. Baly's law, that disease varies in proportion to the *density* of population. Now, both of these "laws" have been very firmly established by facts in regard to cholera, *so far as cholera is concerned*. But, we venture to affirm that it requires a much larger induction than has yet been made possible, to include all diseases under the same statements; especially as there is a very simple view of the etiology of cholera, according to which it would not be legitimate to extend any conclusion based upon the history of its propagation, farther than to typhus, and to the probable *mortality* of all severe zymotic diseases.

Sanitarians have begun to see that, however numerous are the evidences of the destructive influence of *filth* in its various forms, yet it is a fallacy to imagine it the sole cause of preventable disease; or that "public cleansing and the care of the public health are convertible terms." Food, drink, climate, occupation, privation, migration, ethnological characters, must all be considered. Dr. E. Headlam Greenhow truly asserts that "from looking too exclusively to certain obvious causes of mischief affecting the public health, the benefits realized from sanitary exertions have often failed to fulfil the hopes of their promoters or the expectations of the public."

Still further, Neison, the distinguished statistician, was able to show, from materials derived from the "Friendly Societies," that the highest ratio of sickness is sometimes found associated with a favourable rate of mortality. Mr. Rumsey goes farther, and asserts a belief that "*a diminution in the rate of mortality will be found to co-exist generally with an augmentation of the rate of sickness.*"

"The real sanitary condition of a population is most correctly determined by summing up the periods during which persons of every age and sort suffer from disease, injury, or infirmity. The total 'sick time' measures the *amount* of disease. Medical records display its *nature* and causes. The number of deaths, according to sex and age, determines its *intensity*. Upon these stand-points every statistical inquiry respecting life and health ought to rest."

"Now, as a necessary result of improvements in domestic management and medical treatment, and owing to the removal of those more virulent agents of destruction which, by sharp and decisive strokes, prematurely sever the thread of life, its duration has been lengthened in our great cities. But, at the same time, the sickly and infirm period of existence has been prolonged probably in a greater degree than even life itself. Chronic diseases, or at least functional disorders have increased. Vital force is lowered. Man's work is arrested; his duties are unperformed; his purposes fail; though he still lives. Weakly, diseased children are now mercifully helped, as they never were in olden time, to grow up into weakly, ailing adults, who, in their turn, propagate with abnormal fecundity an unsound progeny. Is this true sanitary progress? Does it deserve the ostentatious parade of a decreasing death-rate?"

Disheartening indeed would be the prospect to the well-wisher of mankind, if this were the best result attainable in the application of the principle.

ples of private and public hygiene. There is a better side to the picture ; but still, it is highly important to take heed to the facts *as they are*, lest we should overlook means of improvement quite as necessary as any that have yet been discerned.

We are compelled to forego the consideration of Mr. Rumsey's second paper, on "Certain Departments of Medico-Sanitary Police and Medico-Legal Inquiry ;" in which he conveys a plan for the establishment of four sanitary offices, statistical, supervisory, analytical, and medico-legal. His statement, however, therein, of the proper sphere and *animus* of the *sanitary reformer*, may form an appropriate conclusion to these remarks :—

"His motto is 'Progress.' His means : impartial, scientific, and comprehensive inquiry ; skilful compilation and truthful publication of facts in every district ; unsparing exposure of abuses ; systematic instruction of the people by qualified teachers ; enlightened administration of wise laws.

"His ends : the health and longevity of the people, aiding their moral and religious improvement, confirming the obligations of social order, strengthening the foundations of public liberty, and thus promoting the lasting peace and happiness of his country."

H. H.

**ART. XII.—*A Treatise on Fever: or Selections from a Course of Lectures on Fever.*** Being part of a Course on the Theory and Practice of Medicine delivered by ROBERT D. LYONS, K. C. C., M. B. T. C. D., L. K. Q. C. P. I., L. R. C. S. I., M. R. I. A., Physician to Jervis-Street Hospital ; formerly Clinical Assistant to the Meath Hospital ; Professor of Practice of Medicine and Pathology in the School of Medicine of the Catholic University of Ireland ; Foreign Secretary to the Pathological Society of Dublin ; M. R. M. S. Lisbon. Late Pathologist-in-Chief to the British Army in the Crimea, etc. etc. Philadelphia : Blanchard & Lea, 1861. 8vo. pp. 362.

WHAT is fever ? what is inflammation ? what relations do they sustain to each other ? are questions which have been before the profession from the days of Hippocrates to our own, and which have not yet been satisfactorily answered. How many attempts have been made to define the words, how many have tried in vain to tell others exactly what they mean by them ! Different views have been given by different observers, each thinking that he was presenting the whole truth, when only one aspect of it had been offered. How characteristic this is of the human mind, when brought into contact with the vast and complicated works and doings of an Almighty Creator, to undertake giving a perfect description and explanation, by setting forth only such facts and appearances as can be embraced within its own narrow field of vision !

In the first chapter of the book before us, these same questions are presented, and the light of the most recent researches and discoveries is thrown upon them. Our author is well qualified, from personal observation, and from acquaintance with the doings and writings of German and French, as well as English pathologists, to discuss the subject which he has chosen for his treatise. He has practised in Ireland, that country of fever, he has practised "in the Crimea at the time of the extensive war in which such great countries," as England, France, and Russia, displayed all their resources. He spent some time at Lisbon, studying an epidemic of yellow